

THREE NEW SPECIES OF *MACRUROHELEA* FROM ARGENTINA WITH
A KEY TO THE NEOTROPICAL SPECIES
(DIPTERA: CERATOPOGONIDAE)

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Abstract.—The following three new species of the predaceous midge genus *Macrurohelea* from Argentina are described and illustrated: *gentilii*, *monothecca* and *wirthi*. Two of these new species, *M. gentilii* and *M. monothecca*, differ from all other species of *Macrurohelea* in possessing a single spermatheca instead of the usual two. A key to the 9 Neotropical species is presented.

The genus *Macrurohelea* is presently known from seven species, six of which are southern Neotropical in distribution. These are *M. caudata* Ingram and Macfie (1931) and *M. thoracica* I. & M. from southern Argentina, *M. kuscheli* Wirth (1965) and *M. setosa* Wirth from southern and northern Chile respectively, and *M. irwini* Grogan and Wirth (1980) and *M. paracaudata* G. & W. from central Chile.

Lee (1962) described *M. commoni* from Australia, the only species presently known from that continent. However, Grogan and Wirth (in prep.) are in the process of describing two new Australian species and it is not unreasonable to expect many more species from that part of the southern hemisphere. *Macrurohelea* is very similar to the northern Holarctic genus *Ceratopogon* and is apparently a southern hemisphere analogue of that genus (Grogan and Wirth, 1980).

In this paper we are describing three new species of *Macrurohelea* recently collected by Mario Gentili from San Martin de los Andes, Argentina. This locality is located 120 km. N of San Carlos de Bariloche (ca. 40°S), the type-locality of *M. thoracica*, and represents a typical Patagonian Andes forest habitat. Specimens of *Macrurohelea* have been taken just north of the Tropic of Capricorn at Vega de San Andres in northern Chile (23°S) to as far south as Lake Gutierrez in southern Argentina (41.5°S). It is of interest to note that none of the six previously described species of *Macrurohelea* from South America have subsequently been collected. This may be an indication that they are quite rare, that they inhabit very unique or specialized habitats, or that standard light trapping methods are not very efficient. The senior author has never encountered them during the course of several collecting trips to suitable habitats. It is also noteworthy that two of our new species, *M. gentilii* and *M. monothecca*, differ from all other species of *Macrurohelea* in possessing a single spermatheca instead of the usual two.

For an explanation of general ceratopogonid terminology see Downes and Wirth (1981); terms dealing with antennal sensilla are those of Wirth and Navai (1978).

The holotypes and allotypes of our new species are deposited in the collection of the Museo de La Plata, La Plata, Argentina. Paratypes of *M. gentilii* will be deposited in the collection of the Instituto de Limnología (ILPLA), La Plata, Argentina, and in the National Museum of Natural History, Washington, D.C., U.S.A.

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KEY TO THE NEOTROPICAL SPECIES OF *Macrurohelea*

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|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 1. Females | 2 |
| – Males | 9 |
| 2. One spermatheca | 3 |
| – Two spermathecae | 4 |
| 3. Wing with intercalary fork in cell R_5 ; wing membrane infuscated, veins dark brown | <i>monotheca</i> new species |
| – Wing without intercalary fork in cell R_5 ; wing membrane whitish hyaline, veins pale | <i>gentilii</i> new species |
| 4. Wing with intercalary fork in cell R_5 | 5 |
| – Wing without intercalary fork in cell R_5 | 6 |
| 5. Second radial cell of wing 2.5 times longer than 1st, veins brown; antennal ratio 1.61 | <i>wirthi</i> new species |
| – Second radial cell of wing 3 times longer than 1st, veins pale; antennal ratio 1.00 | <i>caudata</i> Ingram and Macfie |
| 6. Second radial cell of wing twice as long as 1st | 7 |
| – Second radial cell of wing at least 3 times as long as 1st | 8 |
| 7. Flagellum very short, flagellomeres 9–12 each broader than long, antennal ratio 0.59; very small species, wing length 0.94 mm ... | <i>kuscheli</i> Wirth |
| – Flagellum longer, flagellomeres 9–12 each twice as long as broad, antennal ratio 1.06–1.16; small species, wing length 1.27–1.42 mm | <i>irwini</i> Grogan and Wirth |
| 8. Flagellomeres 5–8 with apical sensilla coeloconica; legs with inconspicuous setae; wing including veins pale | <i>thoracica</i> Ingram and Macfie |
| – Flagellomeres 5–8 lacking apical sensilla coeloconica; legs with numerous long bristly setae; wing including veins infuscated dark brown | <i>setosa</i> Wirth |
| 9. Large species, wing length 2.1 mm or greater | 10 |
| – Smaller species, wing length 1.5 or less | 11 |
| 10. Legs with numerous long bristly setae; wing including veins infuscated dark brown | <i>setosa</i> Wirth |
| – Legs with inconspicuous setae; wing including veins pale | <i>thoracica</i> Ingram and Macfie |
| 11. Very small species, wing length 0.90 mm .. | <i>paracaudata</i> Grogan and Wirth |
| – Small species, wing length 1.3 mm or greater | 12 |
| 12. Wing with intercalary fork in cell R_5 ; second radial cell of wing subequal to 1st; aedeagus more or less crescent shaped .. | <i>caudata</i> Ingram and Macfie |

- Wing without intercalary fork in cell R₅; second radial cell of wing 1.7–2.0 times longer than 1st; aedeagus triangular 13
- 13. Gonostylus bent abruptly subapically at 90°; sternum 9 with deep caudomedial excavation *gentilii* new species
- Gonostylus curved subapically, not bent at 90°; sternum 9 with shallow caudomedial excavation *irwini* Grogan and Wirth

***Macrurohelea gentilii* Spinelli and Grogan, NEW SPECIES**

Fig. 1

Diagnosis.—A medium sized species of *Macrurohelea*, the females distinguished from all other species in the genus except *M. monothea* n. sp. by its single large spermatheca. Females of *M. gentilii* differ from those of *M. monothea* by their wing with pale membrane and veins that lack an intercalary fork in cell R₅ (wing including veins of *M. monothea* infuscated brown and cell R₅ possesses an intercalary fork). Males of *M. gentilii* differ from all other males in the genus by their gonostyles that are abruptly bent subapically at 90°.

Female.—Wing length 1.68 (1.58–1.74, n = 3) mm; breadth 0.77 (0.74–0.79, n = 3) mm.

Head: Brown. Eyes pubescent, separated for a distance equal to the diameter of 2.5 ommatidial facets. Antenna with dark brown pedicel; flagellum (Fig. 1a) brown; first flagellomere with 2–3 apical sensilla coeloconica; flagellomeres with lengths in proportion of 25-15-14-14-15-15-15-30-32-34-40-50; antennal ratio 1.45 (1.40–1.50, n = 3). Palpus (Fig. 1c) brown; lengths of segments in proportion of 10-15-20-12-16; third segment with well defined pit; palpal ratio 1.90 (1.65–2.05, n = 3). Mandible with 9 teeth.

Thorax: Brown; scutum with a few scattered setae and extremely fine pubescence. Legs uniformly brown including tarsi; hind tibial comb with 5 spines; hind tarsal ratio 2.16 (2.10–2.28, n = 3); palisade setae well developed on first tarsomere of fore and hind leg; fifth tarsomere of fore leg about 2.5 × longer than broad, 3.5 × longer than broad on mid and hind legs; fourth tarsomeres deeply cordate; claws small equal sized without basal inner teeth, but with slender basal hair like barbs. Wing (Fig. 1d) with membrane whitish hyaline, veins pale; two radial cells present, the second about 3 × as long as first; costa extends 0.74 (0.73–0.76, n = 3) of wing length; venation as figured. Halter light brown.

Abdomen: Brown, slightly paler than thorax. Tenth segment elongated and bent forward ventrally as is typical for members of the genus. One single large spermatheca (Fig. 1e) with moderately long neck; partially collapsed, measuring 0.09 mm by 0.07 mm.

Male.—Wing length 1.44 (1.40–1.52, n = 5) mm; breadth 0.51 (0.50–0.52, n = 5) mm. Similar to female with the following sexual differences: Flagellum (Fig. 1b) with dense brown plume; flagellomeres with lengths in proportion of 28-17-17-17-17-17-17-18-20-30-54-65. Palpus with segments in proportion of 10-13-22-13-24; palpal ratio 2.30 (2.20–2.40, n = 2). Wing with costa extending to 0.63 (0.62–0.65, n = 5) of wing length, second radial cell 1.7 × longer than first. Genitalia (Fig. 1f–g): Sternite 9 short with a very deep caudomedian excavation, caudal membrane spiculate; tergite 9 gradually tapering distally to a somewhat rounded apex bearing two moderately long apicolateral processes, cerci well de-

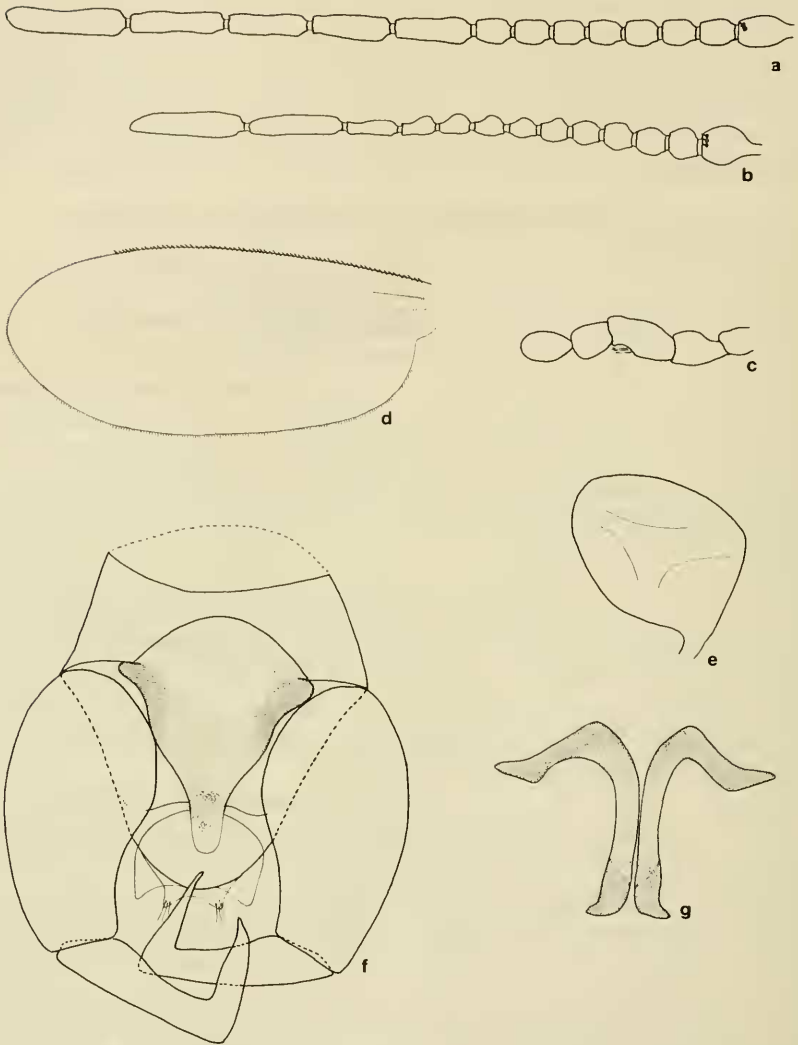


Fig. 1a-g. *Macrurohelea gentilii*. a, Female flagellum. b, Male flagellum. c, Female palpus. d, Female wing. e, Spermatheca. f, Male genitalia, parameres removed. g, Parameres.

veloped. Gonocoxite elongate, slightly curved, about twice as long as broad; gonostylus slender, abruptly bent subapically forming an angle of 90° , tapering distally to narrow pointed tip. Aedeagus triangular, about as long as broad; basal arch 0.3 of total length; basal arm heavily sclerotized, tapering distally to a narrow rounded tip. Parameres (Fig. 1g) separated; basal arm heavily sclerotized, recurved doubly, distal portion lightly sclerotized except tip, which is bent outward on extreme apex.

Types.—Holotype ♀, allotype ♂, Argentina, Provincia de Neuquen, San Martin de los Andes (1400 m) 15-IV-1982, M. Gentili, at light; paratypes, same data as types, 2 ♀, 4 ♂.

Discussion.—This species is named in honor of Mario Gentili, who collected

all of the specimens described in this paper, in recognition of his important contributions to the collection and study of Argentine insects.

***Macrurohelea monothea* Spinelli and Grogan, NEW SPECIES**

Figs. 2a, c, e, g, h

Diagnosis. — A large species of *Macrurohelea* distinguished from all other species in the genus except *M. gentilii* n. sp. by its single large spermatheca, and differing from *M. gentilii* by its wing with an intercalary fork in cell R_5 and the wing membrane and veins infuscated dark brown (wing of *M. gentilii* lacking intercalary fork and wing membrane and veins pale).

Holotype female. — Wing length 2.05 mm; breadth 0.87 mm.

Head: Brown. Eyes pubescent, separated for a distance equal to the diameter of 2 ommatidial facets. Antennal pedicel dark brown; flagellum (Fig. 2a) brown; first flagellomere with 2 apical sensilla coeloconica; flagellomeres with lengths in proportion of 38-20-20-20-20-20-20-55-52-55-60-80; antennal ratio 1.70. Palpus (Fig. 2c) brown with lengths of segments in proportion of 18-25-30-20-37; third segment with well defined pit; palpal ratio 2.00. Mandible with 12 teeth.

Thorax: Brown; scutum with a few scattered setae and extremely fine pubescence; scutellum bearing 3 similar setae, 1 central and 2 marginal. Legs brown including tarsi; hind tibial comb with 5 spines; hind tarsal ratio 2.40; palisade setae well developed on first tarsomere of fore and hind legs; fourth tarsomeres deeply cordate; fifth tarsomere of fore leg about $2.5\times$ longer than broad, $3.5\times$ on mid leg, lost on hind leg; claws small, equal sized, without basal inner teeth, but with slender basal hair like barbs. Wing (Fig. 2e) with membrane infuscated, veins dark brown, coarse and well defined; cell R_5 with weak intercalary fork; two radial cells present, the second about $3.5\times$ longer than first; costa extends 0.74 of wing length; M_2 becomes nearly obsolete at base. Halter light brown.

Abdomen: (Fig. 2g) Brown, slightly paler than thorax. Tenth segment long, as typical for the genus. One single large spermatheca (Fig. 2h) partially collapsed, apparently pyriform with short broad neck, measuring 0.1 mm long by 0.07 mm broad.

Male. — Unknown.

Type. — Holotype ♀, Argentina, Provincia de Neuquen, San Martin de los Andes, 23-IV-1982, M. Gentili, light trap.

Discussion. — The specific epithet is from the Greek, *mono* (one), and *theca* (sac), in reference to the single large spermatheca that this species possesses.

***Macrurohelea wirthi* Spinelli and Grogan, NEW SPECIES**

Figs. 2b, d, f, i

Diagnosis. — A small species of *Macrurohelea* females of which are distinguished from all other members of the genus by the following combination of characters: small size (wing length 1.33 mm); cell R_5 of wing with intercalary fork; 2nd radial cell of wing $2.5\times$ longer than the 1st; wing veins infuscated; two spermathecae; antennal ratio 1.61.

Holotype female. — Wing length 1.33 mm; breadth 0.62 mm.

Head: Brown. Eyes pubescent, separated for a distance equal to a diameter of two ommatidial facets. Antenna with dark brown pedicel; flagellum (Fig. 2b) brown, flagellomeres 9-12 about 3 times as long as broad; first flagellomere with

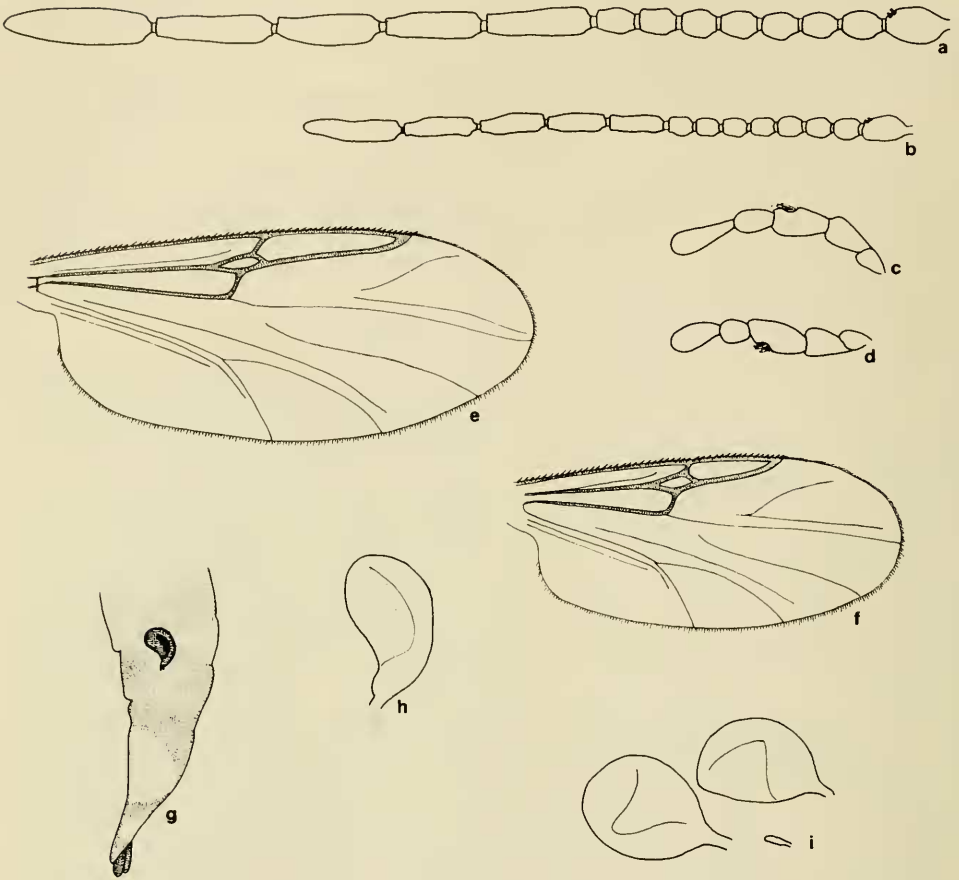


Fig. 2. *Macrurohelea monothecca* (a, c, e, g-h) and *M. wirthi* (b, d, f, i). Females: a-b, flagella; c-d, palpi; e-f, wings; g, abdomen; h-i, spermathecae.

2-3 apical sensilla coeloconica; flagellomeres with lengths in proportion of 18-11-11-11-11-11-11-12-24-26-29-32-44; antennal ratio 1.61. Palpus (Fig. 2d) brown; lengths of segments in proportion of 10-14-18-9-16; third segment with well defined pit; palpal ratio 1.8. Mandible with 8 teeth.

Thorax: Brown; scutum with a few scattered setae and extremely fine pubescence. Legs uniformly brown including tarsi; palisade setae well developed on first tarsomere of fore and hind legs; hind tibial comb with 5 spines; hind tarsal ratio 2.55; fourth tarsomeres deeply cordate; fifth tarsomere of fore leg about $3.5 \times$ longer than broad with small simple equal claws, fifth tarsomeres and claws lost on mid and hind legs. Wing (Fig. 2f) about $2.15 \times$ longer than broad; membrane slightly infuscated, veins dark brown, coarse and well defined; intercalary fork present in cell R_5 ; two radial cells present, the second $2.5 \times$ as long as first; costa extends 0.7 of wing length. Halter light brown.

Abdomen: Brown, tapering distally. Tenth segment elongated as is typical for the genus. Spermathecae (Fig. 2i) slightly unequal, ovoid to spheroid with slender

necks, measuring 0.062 mm by 0.050 mm with a 0.012 mm neck, and 0.054 mm by 0.046 mm, with a 0.012 mm neck, plus a small vestigial spermatheca.

Male.—Unknown.

Type.—Holotype female, Argentina, Provincia de Neuguen, San Martin de los Andes (1400 m.), 15-IV-1982, M. Gentili, at light.

Discussion.—We are pleased to name this species in honor of our good friend and colleague Willis W. Wirth in recognition of his outstanding contributions to the study of Ceratopogonidae during the past 35 years.

This species is similar to *M. caudata* Ingram and Macfie by virtue of its similar sized wing with an intercalary fork in cell R_5 and two spermathecae. Females of *M. caudata* differ from those of *M. wirthi* by having the 2nd radial cell $3 \times$ longer than the 1st, the wing veins pale and having an antennal ratio of 1.00.

The female of *M. irwini* Grogan and Wirth also resemble that of *M. wirthi* in having a similar sized wing and two spermathecae. The female of *M. irwini* differs from that of *M. wirthi*, however, in lacking an intercalary fork in cell R_5 , having the 2nd radial cell twice as long as the 1st, wing veins grayish and an antennal ratio of 1.06–1.16.

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